TO: Director
Division of Special Programs, DHHS

FROM: Acting Director
Division of Facilities Management

SUBJECT: Indian Health Service, FY 1996 Energy Report

The attached submission is in response to your October 18 Memorandum, requesting the Indian Health Service (IHS) Fiscal Year (FY) 1996 Energy Report. We used your guidelines to ensure that this submission meets the reporting requirements of the National Energy Conservation Policy Act (NECPA), as amended by the Energy Policy Act of 1992 (EPAct), the Executive Order (EO) 12759, Federal Energy Management, and EO 12902, Energy Efficiency and Water Conservation in Federal Facilities.

If you have any questions or require further information, please contact Adam Scully, P.E., Staff Engineer and Energy Coordinator, Facilities Engineering Branch at (301) 443-7998.

James R. Biasco, P.E.

Attachment

cc: Area Facilities Engineers
DFM Read File
FEB Project File

Prepared by:IHS/OEHE/DFM/FEB/ASCULLY:dj:11/21/95:3-7998:Rm600B
DOC#: O:\WP\DFM\FEB\ENERGY\ENER96.RPT

Indian Health Service

FY 1996 Energy Report

November 21, 1996

Indian Health Service
FY 1996 Energy Report

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A. ANNUAL ENERGY MANAGEMENT DATA REPORT

In 1985, IHS reported a total consumption of 1,414,011 MMBtu at a rate of 186,095 Btu/GBF. By 1996, IHS facility engineers working with Engineering Services had reduced the rate to 161,318 BTU/GBF. This decrease represents a 13 percent reduction in our energy rate since 1985. Our goal of reducing our energy rate by 20 percent by the year 2000 is still achievable.

The decrease of 13 percent can be attributed to better and more efficient designs, expansion of building automation systems, replacement of inefficient lighting, and better operational procedures.

I. Energy Consumption and Cost Data

AGENCY:	Indian Health Service	REPORTED YEAR:	Fiscal Year 1996
PREPARED BY:	Adam Scully, P.E.	TITLE:	Staff Engineer
PHONE NUMBER:	(301) 443-7998	DATE SUBMITTED:	November 13, 1995

Buildings/Facilities

Energy Type	Reporting Units	Annual Consumption	Annual Cost	Unit Cost ($)	Total MMBtu
Electricity	KWH	117,036,113	8,450,543	0.072 /kwh	399,327
Fuel Oil	Thous. Gal.	1,369,399	1,342,176	0.98 /gal	189,936
Natural Gas	Thous.Cu.Ft.	375,766	1,377,437	$3.67 / thCuFt	387,415
LPG/Propane	Thous. Gal.	1,233,823	624,945	0.51 /gal	117,830
TOTALS	---	---	11,795,101	---	1,083,750

Gross Square Feet	Btu/Gross Square Feet	$/Gross Square Feet
6,784,765	161,318	$1.74

Vehicles/Equipment

Energy Type	Reporting Units	Annual Consumption	Annual Cost (thous. $)	Unit Cost ($)	Total Btu
Auto Gas	Thous. Gal.	376.6	470.8	1.25 /gal	47,078,737,000

II. Energy Conservation Program Summary

AGENCY:	Indian Health Service	REPORTED YEAR:	Fiscal Year 1995
PREPARED BY:	Adam Scully, P.E.	TITLE:	Staff Engineer
PHONE NUMBER:	(301) 443-7998	DATE SUBMITTED:	November 13, 1995

DIRECT AGENCY EXPENDITURES

Direct expenditures on facility energy efficiency improvements

Annual Expenditures (Thous. $) Current Fiscal Year		606,000
Annual Expenditures (Thous. $) Next Fiscal Year		316,000
Annual savings anticipated from expenditures	3,823 MMBTU	41.2Thous. $)

ENERGY SAVINGS PERFORMANCE CONTRACTS

Number of ESP contracts awarded	None
Annual savings anticipated from ESP contracts	None

UTILITY INCENTIVES

Incentives received	None	(Thous. $)
Funds spent in order to receive incentives	None	(Thous. $)
Annual savings anticipated from DSM activities	None	MMBTU

TRAINING

Current year expenditures for energy management training		20(Thous. $)
Number of personnel trained	16	

SUMMARY OF ALTERNATIVE TRANSPORTATION FUEL USAGE

Vehicles (required by EPACT Sec. 308)

Number of dedicated alternative fuel vehicles	None	
Fuel consumed in dedicated AFVs	0	(Thous. GEG)
Number of dual-fuel alternative fuel vehicles	None	
Fuel consumed in dual-fuel AFVs	0	(Thous. GEG)

Fuel (required by EPACT Sec. 303)

		Annual Consumption	Annual Cost (Thous. $)
Biodiesel	Thous. Gal.	None	
Electric	KWH	None	
Ethanol	Thous. GEG	None	
Hydrogen	Thous. GEG	None	
Liquified Petroleum Gas (LPG)	Thous. GEG	None	
Methanol	Thous. GEG	None	
Natural Gas (CNG or LNG)	Thous. GEG	None	
Other	Thous. GEG	None	

B. ENERGY CONSUMPTION REDUCTION GOALS

The Indian Health Service (IHS) physical plant consists of over 2,000 buildings located at some of the most remote areas of the United States. In 1996 the IHS spent $11,795,101 on energy for its leased and owned facilities.

The IHS annual energy consumption goals are consistent with the Energy Policy Act of 1992 and Executive Order 12902. Our goals are to reduce energy consumption 20 percent by year 2000, and 30 percent by year 2005. These reduction goals are based on 1985 energy consumption data.

C. ENERGY SAVINGS PERFORMANCE CONTRACTS

At the present time IHS does not have specific performance contracting commitments.

Several Area Facility Engineers and Project Managers have attended a course in July of 1995 in Dallas titled " Successful Energy Savings Performance Contracting". Those who attended felt that the process for verifying and comparing actual energy costs and savings with anticipated costs and savings is complicated. The contractual aspects of an ESPC may involve additional staff work. The likelihood of increasing staff work has created a reluctance from all entities involved to proceed any further. The IHS would like to interview other agencies who have ESPCs in place, before entering into an ESPC of our own. Additionally, the IHS would need to implement proper planning between HQ, Area, and Engineering Services, and have an accurate life cycle analysis that takes into account the costs of managing this type of contract.

In order to implement an ESPC the IHS would need to identify staff and invest in the training of this staff. The question remains will the time expended by government personnel learning and managing ESPCs be worth the financial benefits that can derived on the small projects? This question needs to be answered and analyzed.

The Aberdeen Area is considering performance contracting for a previously approved lighting retrofit project. Discussions have been held with the EPA Green Lights Program for lighting retrofit performance contracting. The Aberdeen Area is discussing performance contracting with the Department of Energy (DOE)- Federal Energy Management Program (FEMP) which could lead to future performance contracting and funding from DOE. The Aberdeen Area is hopeful these EPA and DOE programs will result in successful performance contracting ventures.

D. ENERGY EFFICIENCY AND WATER CONSERVATION PROJECT FUNDING

Non-recurring Maintenance and Improvement funds are used to accomplish energy conservation projects.

The IHS recommended target level for Energy Surveys and Energy Projects is $1,331,000. The target levels at the Area level is as follows:

Area Office	Energy Surveys and Projects (minimum level)
Aberdeen	138,000
Anchorage	292,000
Albuquerque	78,000
Bemidji	68,000
Billings	86,000
California	66,000
Navajo	180,000
Nashville	55,000
Oklahoma	130,000
Phoenix	131,000
Portland	84,000
Tucson	23,000
Total:	$1,331,000

The Area Facilities Engineers did not meet recommended targets, spending only $606,000 on energy related projects. Other Public law and life safety projects took precedence.

Other funding vehicles include financial rebates from utilities. The Oklahoma Area worked with the Oklahoma Gas & Electric Company to implement an off-peak thermal storage system at the Carl Albert Indian Hospital in Ada. The Area Office was granted a $2,500 engineering award in 1994 from Oklahoma Gas & Electric for a study to determine if this project would be mutually beneficial for IHS & OG&E. The study was performed by the Benham Group and estimated a payback period of 4.8 years for IHS with an offer of a contribution from OG&E of $53,000. This project would have involved producing chilled water at night when electrical

rates were lower and storing it in the ground for use during off peak periods. The existing chilled water control system would have been analyzed during the design phase so that the absorption chiller would have been used as the lead chiller instead of the two centrifugals. The electrical consumption of the facility would have been slightly reduced by taking advantage of lower ambient condenser temperatures at night and by installing primary/secondary pumping. This project was not pursued past this initiation point of the award and study because the design engineers and project managers thought that the true payback time for IHS would have been almost twice the Benham estimate.

Congressionally approved funds for large projects are also used to make buildings more energy efficient. For example, the Fort Yates Hospital in Aberdeen will be undergoing a major HVAC renovation in FY 1997. New high efficiency equipment is estimated to save 5% from the total energy consumption at this hospital. The Rosebud Hospital in Aberdeen will also undergo HVAC modifications which will reduce energy consumption by approximately 7%.

E. ENERGY AND WATER SURVEYS AND AUDITS

Both NECPA and EO 12902 require Federal agencies to perform energy and water surveys and audits. EO 12902 details the requirement by specifying prioritization surveys and comprehensive facility audits and by mandating all facilities to be audited within ten years.

I. Prioritization Survey

The Tucson Area makes there energy surveys part of their yearly annual inspection. And incorporates energy surveys as part of the 5 year deep look. Energy management surveys were conducted in the Tucson Area in 1982. Since that time, Deep Look surveys were conducted in 1986 and 1993, and a portion of each Deep Look survey involved energy management. In addition, an Energy Study was conducted for the Sells Hospital in 1991.

The major findings of the 1991 Sells study recommended replacement of some equipment, reviewing equipment sizing to optimize efficiency, reviewing design parameters on outside air quantities to reduce HVAC energy requirements, and making some operational changes to reduce energy use.

Prioritization surveys are complete. Two major mechanical renovation projects at Sells and San Xavier necessitate a comprehensive survey.

In Bemidji Prioritization surveys will be performed in the Service Units that are subject to NECPA and EO 12902.

In Portland performed a preliminary energy audit questionnaire at each service unit in FY 1995. One-hundred percent of the building stock was included in the survey for IHS owned facilities. The survey collected the overall facility information and major energy using systems/equipment information. This information was assessed to produce a prioritization schedule through FY 2001.

The Oklahoma Area's methodology to conduct prioritization surveys was based upon determining which facilities had the highest energy use per square foot and ranking them accordingly. The percentage of building stock included in the surveys was approximate 75%.

II. Comprehensive Facility Audit

The Aberdeen Area has completed energy audits at eight (8) Area facilities. One additional audit will be completed in FY 1997 and the remaining six (6) audits will be planned for FY 1998.

The Oklahoma Area has completed energy audits for the following facilities:

1. Claremore Indian Hospital - 1979 - OES
2. Carl Albert Indian Hospital - 1985 - FKW, Inc. Architects & Engineers
3. Clinton Indian Hospital - 1985 - FKW, Inc. Architects & Engineers
4. Pawnee Indian Health Center - 1985 - FKW, Inc. Architects & Engineers
5. Talihina Indian Hospital - 1985 - FKW, Inc. Architects & Engineers
6. W.W. Hastings Indian Hospital, Tahlequah, - 1995 - OK Energy Analysis & Diagnostic Center
7. Lawton Indian Hospital - 1995 - OK Energy Analysis & Diagnostic Center
8. Pawnee Indian Health Center - May of 1996 - Oklahoma Industrial Assessment Center
9. Anadarko Indian Health Center - May of 1996 - Oklahoma Industrial Assessment Center

None of the Audits mentioned above are considered comprehensive but many project were implemented and energy savings were realized at a relatively low cost of surveying these buildings.

The Oklahoma Area plans a comprehensive facility audit at the Claremore Indian Hospital in FY97 upon completion of the installation of variable speed drive HVAC components & the

lighting renovation project. The previous prioritization list will be updated and utilized so that other facilities will be audited as time and funding permit in the next few years.

In Tucson guidelines and scopes for conducting comprehensive audits will be written and will be conducted by Architect/Engineer contractors.

In Bemidji comprehensive audits have been performed at the Leech Lake and Red Lake Service Units. The White Earth Service Unit will be audited one year after completion of a new facility. The Leech Lake Service Unit will receive another audit one year after major remodeling is completed at its facility. The following is a summary of the comprehensive audits at the Bemidji Area:

INSTALLATION NAME/NUMBER	USE	ENERGY AUDIT?	YEAR OF AUDIT	DESCRIPTION OF ENERGY CONSERVATION OPPORTUNITY
Leech Lake Service Unit	HOSP	YES*	95	Replace lamps and ballast, insulation, replace windows, attic insulation, natural gas conversion for boiler/kitchen, efficient motors, energy management system
Red Lake Service Unit	HOSP HCTR	YES*	95	Weatherstripping, electric to gas kitchen, replace lamps and ballast, efficient motors, energy management system

The Portland Area's plan for comprehensive energy audits for the next five years are as follows:

ENERGY AUDIT CHRONOLOGY			
Scheduled Year of Audit	**Service Unit**	**Year of Previous Audit**	**Number of Years Since Last Audit**
1996	Colville - **Scheduled**	1986	10
	Neah Bay - **Completed**	never	0
1997	Warm Springs	1992 (new bldg) 1986 (old)	5 11
	Northern Idaho	1986	11
1998	Northwest Washington	1992	6
	Taholah	1992	6
1999	Fort Hall	1994	5
	Wellpinit	1986	N/A
2000	Western Oregon	1992	8
	Yakama	1994	6
2001	Puyallup	1992	9
	YTC, Spokane	1995	1

The Portland Area has a goal to implement justifiable Energy Conservation Measures identified in comprehensive energy audits within 180 days of receipt of energy audit reports.

A summary of the Portland Area comprehensive facility audit is provided in the following tables.

1. Number of Locations: 12
2. Energy Audits within last 3 years: 2
3. Percentage of all facilities with Energy Audits: 83%
4. Number of New Facilities designed to Energy Standards (within the last 3 years): 1
5. Total Percentage of Facilities with recent audits and/or new facilities designed to standards: 75%

The following summarizes Portlands Energy Audits:

INSTALLATION NAME/NUMBER	ENERGY AUDIT PERFORMED	YEAR	DESCRIPTION OF ENERGY CONSERVATION OPPORTUNITY	INITIAL COST ($)	PAY BACK
Colville Service Unit HCTR 11551	Yes	1986	Initial Report Not on File. Facility to be resurveyed in FY 1996.		
Fort Hall Service Unit HCTR 11491	No	1990	New facility designed to contemporaneous energy standards.		
	Yes L.A. Olson	1994	Analysis of Energy Usage (to confirm 1990 design).		
Neah Bay Service Unit HCTR 30067	Yes PO6NB008C6	1996	Recommendation to reset thermostat settings during unoccupied periods.	$10	0.03
			Recommendation to replace existing window seals.	$500	4
			Recommendation to replace interior light fixtures with new lamps and ballasts.	$7,673	6
			Recommendation to install timer for domestic hot water circulation pump.	$300	9
No. Idaho Service Unit HCTR 20944	Yes	1986	Report not on file, audit will be reaccomplished in FY 1997.		
NW Wash. Service Unit HCTR 37567	Yes Kerner/Fisher	1992	Comprehensive Audit.		
	No PD9NW002C6	10/94	Install energy management time clock. COMPLETED	$2,049	0.2
			Install floor insulation. COMPLETED	$21,789	4.5
			Install occupancy sensors. COMPLETED	$89	3.7
			Construct main entrance vestibule. COMPLETED	$9,785	12.8

INSTALLATION NAME/NUMBER	ENERGY AUDIT PERFORMED	YEAR	DESCRIPTION OF ENERGY CONSERVATION OPPORTUNITY	INITIAL COST ($)	PAY BACK
Puyallup Service Unit HCTR 35776	No	1992	New facility designed to contemporaneous energy standards.		
Taholah Service Unit HCTR 20611	Yes Kerner/Fisher	1992	Comprehensive Audit.		
	PD2TA004C6	1992	Install energy management system. COMPLETED	$2,049	0.5
		1992	Install floor insulation. COMPLETED	$8,604	1.6
		1992	Install new ventilation system. COMPLETED	$15,843	12.5
Warm Springs Service Unit HCTR 11542	Yes Anderson	1986	Audit (Old Health Center).		
Wellpinit Service Unit HCTR 11553	Yes Anderson	1986	Audit	N/A	
W. Oregon Service Unit HCTR 11540	Yes Pacific Architects	1992	Install Energy Management System..		
Yakama Service Unit HCTR 19712	Yes Anderson	1987	Energy analysis of new construction. COMPLETED	N/A	
	Yes L.A. Olson	1994	Analysis of energy usage in the old facility. COMPLETED	N/A	
Youth Treatment Center / ITC HCTR 41217	Yes	1995	New facility designed to current energy standards.		

III. Leased Facilities

The Oklahoma Area has recently installed new air conditioning units with economizers and programmable thermostats at White Eagle, Wewoka, & Miami. There is no planned procedure for completing energy and water audits in buildings with full service leases due to the language

in the these leases that impede their office from pursuing this. They will attempt to pursue audits in facilities without full service leases in the next few years.

Construction of a new White Earth Health Clinic in Bemidji is in progress, with completion expected in 1997. A comprehensive energy audit will be performed for the entire Service Unit in 1998 or 1999 following one year of operation of the new clinic.

F. IMPLEMENTATION OF ENERGY EFFICIENCY AND WATER CONSERVATION PROJECTS

In the Oklahoma Area two energy audits were completed in fiscal year 1995. One was conducted at the W.W. Hastings Indian Hospital by Oklahoma State University (OSU) graduate engineering students with the assistance of Ken McKenzie and Adam Scully. Another similar audit was conducted at the Lawton Indian Hospital by OSU graduate engineering students that was initiated by the Area Office.

Two energy audits were completed in fiscal year 1996. One was conducted at the Pawnee Indian Health Center by OSU graduate engineering students. Another similar audit was conducted at the Anadarko Indian Health Center.

Projects initiated as a result of these audits are as follows:

1. Expand Implementation of Night Setback-Payback (2.5 years)
2. Insulate Steam Lines and Fittings-Payback (2 years)
3. Replace Stairwell Lighting - Payback (1 year)
4. Reduce Boiler Combustion air - Payback (1 year)
5. Retrofit Exit signs - Payback (1 year)
6. Replace Outside Lighting - Payback (3 years)
7. Install Occupancy Sensors - Payback (4 years)
8. Replace Pharmacy Lighting - Payback (3 years)
9. Delamp Hallway Fixtures - Payback (1 year)
10. Install Florescent T-8 lamps with Electronic Ballasts - Payback (6 years)
11. Eliminate the Arrears Charges - Payback (0 years)
12. Combine Electric & Gas Meters - Payback (3.1 years)
13. Insulate Condensate Return Tank-Payback (3.6 years)
14. Remove 8.5% Sales Tax form the Utility Demand Charges - Payback (0 years)
15. Replace Mercury Vapor Lamps with Compact Florescent Lamps - Payback (7.5 years)
16. Demand Shed by Using the Emergency Generator for On-Peak Power Production - Payback (0 years)

Projects numbered 2,4,5,& 10 from this above list have been implemented at several facilities.

The Area office plans to implement/construct all of the other numbered items from the above list this fiscal year so that significant savings with short paybacks can be realized at the respective facilities.

The Area office will assist the facility manager in coordinating the implementation of the light bulb & ballast retrofit project that came from the energy survey at Tahlequah this fiscal year.

The Area office will submit a project in FY97 to replace stairwell lighting, exit signs, outside lighting, pharmacy lighting and delamp hallway fixtures that came from the energy survey at Lawton.

A memo has been written to Area Finance to have the sales tax removed from the demand portion of the electricity bill at Anadarko and finance was requested to look at all other facilities for similar discepancies. Efforts are also underway with Area Finance to eliminate the significant arrears charges on the utility bills.

The Bemidji Area incorporates energy conservation features as a normal procedure for design and implementation of individual projects. Relamping and ballast replacement projects are provided as routine maintenance. FY 1996 projects for the Leech Lake Service Unit include:

Arctic entry for emergency room entrance $7,000
Install double glazing in corridor 108 windows
$ 450

FY 1996 projects for the Red Lake Service Unit include:

Install timers on parking lot vehicle plug-ins
$4,000

Replace exit lights with efficient units $1,000

The Portland Area supports conservation of energy in federal and tribally owned facilities operated directly by IHS or under P.L. 93-638. The following is a list of energy conservation projects implemented during FY 1996:

Colville - PD0CO426C6 - Phase III of this project (pending closeout) replaced two out-dated electric (pre 1968) boilers with efficient boilers and installed new energy efficient lighting and windows. A new suspended ceiling was installed which will

reduce the volume of conditioned space.

Neah Bay - PO6NB008C6 - This project instituted an energy audit at the Sophie Trettevick Indian Health Center in Neah Bay, Washington. Implementation of recommendations with ten year or less payback is pending.

Fort Hall - Engineering Services, Seattle performed a Deep Look Survey at the federally owned facilities. The final report is pending and upon receipt, recommendations for any energy conservation measures shall be evaluated.

Yakama - Engineering Services, Seattle performed a Deep Look Survey at the federally owned facilities. The final report is pending and upon receipt, recommendations for any energy conservation measures shall be evaluated.

Indian Tribal Consortium - The ITC Youth Residential Treatment Center, Spokane, was constructed to adhere to the most recent energy efficiency and water reduction guidelines. This facility came online in mid-FY 1996.

Northern Idaho - PO4NI006C6 - This project provided new energy efficient HVAC systems (including heat pumps, ductwork, air handlers and controls) for the main level zone and basement level zone of the Lapwai Indian Health Center in Lapwai, Idaho. In addition, new energy efficient lighting was installed in the basement.

Wellpinit - PO4WE006C6 -This project provided new energy efficient HVAC systems (including heat pumps, ductwork, air handlers and controls) for the main level zone and basement level zone of the David C. Wynecoop Memorial Health Center in Wellpinit, Washington. In addition, new energy efficient lighting was installed in the basement.

Western Oregon - PO6WN008C6, Salem, Oregon - The design for this project was accomplished to provide an upgraded HVAC system including new energy efficient fan coil units, boilers, and chiller for the Chemawa Health Center in FY 1997. Energy efficient lighting will be installed for the building exterior.

Fort Hall A/SAP, Fort Hall, Idaho - A repair project was completed to replace HVAC units and upgrade perimeter insulation.

Nanitch-Sahallie A/SAP, Salem, Oregon - A project

was funded to replace obsolete and inefficient HVAC units including a lighting upgrade to current standards.

Puyallup A/SAP, Tacoma, Washington - A project was completed installing high energy efficiency boilers and associated control systems.

Yakama A/SAP, Toppenish, Washington - A project was completed replacing HVAC units and adding proper roof insulation.

G. SOLAR AND OTHER RENEWABLE ENERGY

There were no projects planned, under construction, or completed in FY 1995 which included passive solar design and active solar technologies.

Solar heating is used in several IHS Service Units. Most of the solar fields are small and are designed to heat domestic water. One solar field in Whiteriver, Arizona has been put out of commission due to piping corrosion, mal-functioning controls, and the high cost of maintaining this system.

The Bemidji Area explored the possibilities of using pelletized garbage as an alternative fuel for hot water boilers at the Red Lake Hospital. While the economics may have been acceptable, the quality of the fuel was in question. Reliable Btu content, reliable supply, and possible infectious hazard from the fuel determined the alternative to be unadvisable at this time.

H. MINIMIZATION OF PETROLEUM-BASED FUEL USE

Projects to minimize petroleum-based fuel use have not been implemented in IHS, other than energy conservation projects which result in less fuel use. Such projects will be considered in energy audits for each facility.

The Aberdeen Area estimates a 20,000 gallon diesel fuel reduction per year when all Area incinerators are removed from service.

I. ENERGY EFFICIENT OPERATIONS AND MAINTENANCE PROCEDURES

The Tucson Area has been replacing thermostats with new ones that have automatic time-setback features. In addition they also are planning to install motion detectors in some rooms such as conference areas. The Area is replacing inefficient water valves with water-

saving valves as the older ones wear out. The Area has emphasised specifying energy efficient replacements on all equipment replacements. The Area is looking for opportunities to use outdoor air for free cooling when the air temperature allows and when the ventilation requirements for healthcare spaces are not violated. As lighting is replaced, more efficient lamps and ballasts are specified.

The Oklahoma Area has installed programmable thermostats in health centers at Miami, White Eagle, & Wewoka. The staff has been trained how to apply adaptive intelligent recovery to operate these thermostats to avoid conditioning space during unoccupied times. The demand meter at Lawton will be tied into the existing CSI control system this year to track and minimize demand charges at this facility.

The Bemidju Area has replaced existing troffer lamp/ballast with T-8, 32-watt lamps and electronic ballasts as routine maintenance in all their facilities. Controls have been installed to reduce temperatures and reduce/stop HVAC operation at night and on the weekends.

The Portland Area Indian Health Service Energy Guideline, dated October 5,1992, implements operations and maintenance procedures for increased energy efficiency within the service units. The guidelines include:

- Energy Consumption Data Collection, Analysis, and Reporting
- Energy Audits
- Technical Assistance for Implementing Energy Conservation Measures

The Aberdeen Area has an active Preventive Maintenance program which is an aid in reducing energy consumption. The projected savings from this program is estimated to be 2% of fuel consumption at Area facilities.

J. ENERGY EFFICIENCY IN NEW SPACE

The Code of Federal Regulations (CFR)436 and CFR 435 (or state codes, whichever are more stringent), are used to ensure that designs of new buildings incorporate life-cycle cost methodologies. This applies to renovation of existing spaces.

In the Oklahoma Area has adopted policies to ensure that design minimizes the life-cycle cost of a facility. This same policy applies to renovation of existing spaces.

The Bemidji Area used the Code of Federal Regulation (CFR) 436 and CFR 435 are used to ensure the remodeling

of existing space were life cycle cost effective. Technologies and practices for energy efficiency and water conservation were provided for the new White Earth Health Clinic according to IHS Headquarters policy.

In the Portland Area The ITC Youth Residential Treatment Center used new practices and products for energy efficiency and water conservation. The new facility uses community water, electricity and natural gas as the energy sources. It commenced initial operation in the second quarter of FY 1996.

The Aberdeen Area Youth Regional Treatment Center (Chief Gall) is one example of a new facility using state of the art systems such as T8 lamps with electronic ballasts for an energy efficient lighting system and a computer controlled energy management system for heating and cooling. This new facility is estimated to have an energy efficiency as high as 20% better than older similar facilities.

K. PERFORMANCE EVALUATIONS

Position descriptions and performance evaluations of facility managers, designers, energy managers, their superiors, and others critical to the implementation of EO 12902 do not specifically address energy efficiency, water conservation, and solar and other renewable energy projects. However, such actions are included in performance evaluations since they are normal to the positions.

In the Aberdeen Area The Area Facilities Engineer and the DFM Mechanical Engineer have energy management in their annual performance evaluations. The Area Facility Engineer will recommend in FY 1997 that each Facility Manager have this element in their performance evaluations.

L. INCENTIVE AWARDS

Except for awards and recognition from immediate supervisors, there are no incentive programs to reward exceptional performance in implementing the provisions of NECPA and EO 12902.

M. PROCUREMENT OF ENERGY EFFICIENT PRODUCTS

Procurement of energy efficient products is a normal part of business. All personnel recommending and specifying products for procurement consider energy efficiency and cost savings in product selection.

The Tucson Area Facility Engineer reviews procurement documentation to ensure that all new products meet appropriate energy efficiency requirements. This includes minor parts - such as lamps for lights - and major energy consumers, such as air conditioners and hot water heaters.

In the Oklahoma Area Activities to institute mechanisms and inform facility managers to purchase energy efficient products when they are cost effective have been initiated. The brochure from the Federal Procurement Challenge discussing how to buy energy efficient products has been requested by the Area Office so it can be shared with all Oklahoma City IHS facility managers. Quick references to products that comply with EO 12902 and simple guidelines for estimating cost-effectiveness will be distributed to our facility managers.

The Portland Area Indian Health Service Guideline, establishes model operations and maintenance purchasing procedures for increased energy efficiency within the service units.

N. ENERGY MANAGEMENT TRAINING

The IHS Energy Coordinator has developed a course for the Area Engineers and facility managers which covers the following topics:

a. Overview of Codes and Standards
b. Economics
c. Energy Audits/Instrumentation
d. Electrical System Utilization
e. Mechanical and HVAC systems
f. Utility & Process Systems Utilization (Processes)
g. Building Envelope
h. Cogeneration
i. Procurement of Fuel
j. Energy Management Systems
k. Control Strategies
l. Thermal Energy Storage
m. Lighting
n. Boiler & Incineration Plants
o. Maintenance Program

Sixty engineers, managers, and technicians have attended this course. In the past two years 14 people (engineers and technicians) have taken a four hour exam administered by the Association of Energy Engineers (AEE). Nine passed the exam and are now recognized by AEE as Certified Energy Managers (CEMs).

The Tucson Program Area has two trained energy managers; both have attended the IHS Energy Management Training course conducted by IHS headquarters staff.

In the Oklahoma Area Mr. Needham Smith, P.E., C.E.M., presented a four hour training session titled " Energy Management in Hospitals" in July of 1994 to all of our facility managers in the Oklahoma City Area. I requested and assisted him in developing an outline for his presentation. I was able to acquire the services of Mr. Smith at no cost since he was an employee of the state in Oklahoma City. Attendees found the information that he presented interesting and informative. Seven individuals from the Oklahoma City Area attended the energy training course in Norman, Oklahoma in 1995 that was sponsored by IHS-HQ.

Ken McKenzie assisted Mr. Scully in developing a section of this course on procurement of fuels based upon a course he attended titled "Slashing Utility Costs in 1995". This course dealt with the current and future status of end-user wheeling of electricity and purchasing non-tariff natural gas on the spot market. This aspect of energy management should be aggressively pursued by all areas of IHS because this has the highest probability of significantly reducing the costs, not the consumption, of procuring electricity and natural gas for all of our facilities. The Oklahoma Area plans to review procurement of electricity and natural gas for all of our facilities by March of 1997 and implement any positive items that come from this evaluation. A service contract for this evaluation may be pursued if Area office time for a thorough review is limited. Although the consumption component of energy use obviously affects costs and should be examined, the Area will place emphasis on reducing the cost of procuring these resources for the Indian population and the taxpayer.

Bemidji Area Facilities Management Staff Facilities Engineer, Kenneth Olson, attended Energy Auditing Basics presented at the University of Wisconsin, Madison, Extension. The course presented a comprehensive, broad range of elements of the energy audit.

The Portland Area Energy Manager received training in HVAC Plant Improvement.

In the Aberdeen Area energy management training is provided to Facility Managers through monthly newsletters and Area workshops. Additional training is provided by manufacturers as Area HVAC systems are upgraded.

O. ENVIRONMENTAL BENEFITS OF ENERGY MANAGEMENT ACTIVITIES

The Oklahoma Area has installed high efficiency purge units on 4 of their 6 centrifugal chillers that utilize R-11. A project has been initiated this year to evaluate two 400 ton chillers at Claremore to determine if they

can be retrofitted with 123 or whether they should be replaced with new single effect or double effect direct fired absorption chillers. Using the existing high pressure steam boilers as a heat source for chilling water with an absorber will be investigated along with natural gas engine driven chillers or electrically driven centifugals. The demand side management aspects of thermal storage will also be considered. The objective is to decide on the most economical chiller replacement while considering the environmental impact.

A retrofit lighting project has been completed at the Claremore Indian Hospital in Oklahoma to replace inefficient bulbs and magnetic ballasts. Many of the ballasts were discovered to contain PCB's. Investigation into the environmental requirements of ballast disposal showed that some states did not allow any ballasts containing PCB's to be disposed of in landfills while other states did allow this practice. Oklahoma is a state that still allows ballasts containing PCB's to be disposed of in landfills. Our office decided that it would be a prudent action to go ahead and have the PCB portions of ballasts incinerated to eliminate any possibility of "cradle to grave" liability. A project was initiated to have the PCB portions of the ballasts incinerated and the metal housings recycled. Six drums or 4,561 pounds worth of ballasts that contained PCB's were incinerated and the metal housings were recycled. The cost was $420 per drum for a total of $2,520. A Uniform Hazardous Waste Manifest was provided as proof of the incineration of the polychlorinated biphenyls. A certificate of the metal recycling was also provided.

Applicable aspects from the recent Presidential Memorandum on Environmentally Beneficial Landscaping Practices on Federally Landscaped Grounds forwarded by Gary J. Hartz, P.E. will be incorporated into a project at Anadarko to install entrance canopies. Areas around the new canopies will be planted with new deciduous trees on the west side for shading in the summer and to allow radiant heat to reach the building in the winter. Regionally native plants will also be considered in this project.

The Portland Area Office has instituted a chlorofluorocarbon (CFC) reduction program for heating ventilation and air-conditioning (HVAC) systems at several sites.

An HVAC upgrade at Puyallup's Takopid Health Center, Northern Idaho's Lapwai Building #0001 (main HCTR building), and Wellpinit's Building #0005 (main HCTR bldg) eliminated these facilities' needs for CFC gases in FY 1996.